

REMARKS

Claims 1-16 are pending in this application. Claims 17-24 are cancelled herein. Reconsideration of claims 1-16 is requested.

Rejections of the Claims

Claims 1, 2, 4-6, 8-11, and 13 have been rejected under 35 U.S.C. §102(e) as being anticipated by Kudoh (US 6,751,312). Claims 3 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kudoh in view of Slotta (US 6,724,369). Claims 7 and 14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kudoh in view of Martin et al. (US 6,563,487). Claims 15 and 16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kudoh in view of Grome et al. (US 6,580,418). Claims 17-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Grome et al. in view of Redlich (US 5,877,748).

Rejections under 35 U.S.C. §102(b)

Claims 1, 2, 4-6, 8-11, and 13 have been rejected under 35 U.S.C. §102(e) as being anticipated by Kudoh. Independent claim 1 recites a hand-held computing device comprising a set of controls including at least one analog input device for generating an analog signal representing displacement information. In rejecting claim 1 the Examiner points to col. 1 through col. 2 line 6 of Kudoh which relate to FIGs. 1-4. FIG. 1 shows a portable telephone 102 having a stick switch 116 (col. 1 lines 33-43). FIGs. 2 and 3 show that the stick switch 116 comprises a switch box 122 and a stick 124 (col. 1 lines 47-48). The switch box 122 includes one common terminal 132 and five optional terminals that each correspond to one of the directions A, B, C, D and E (col. 1 lines 56-61). “When the stick 124 is operated, the common terminal 132 is connected with either one of the corresponding optional terminals” (col. 1 lines 60-62).

Clearly, Kudoh does not teach an analog input device as required by claim 1. Rather, Kudoh illustrates a form of a digital switch. In the digital switch either a connection is made between the common terminal 132 and one of the corresponding optional terminals, or it isn't. Accordingly, the switch 116 has the characteristic of a

digital on/off switch rather than the characteristic of a continuously variable analog device.

Further, there is no indication that the switch 116 of Kudoh generates an analog signal as required by claim 1. While the cursor moves up or down when the stick 124 is tilted in the direction A/B (col. 2 lines 1-3), for example, there is no indication that an attribute of the cursor, such as speed or position, depends on how hard the stick 124 is depressed or how far the stick 124 is tilted. The signal produced by switch 116 is merely a digital on/off signal. There is no indication in Kudoh that the signal conveys any type of analog information.

Since Kudoh does not teach a set of controls including at least one analog input device for generating an analog signal, Kudoh does not anticipate claim 1. Accordingly, Applicants request that the Examiner withdraw the rejections of claim 1, and claims 2, 4-6, and 8 depending therefrom, under 35 U.S.C. §102(e).

Independent claim 9 recites a hand-held computing device comprising means for providing user input to a processor configured to generate an analog signal representing displacement information. For essentially the reasons provided above with respect to claim 1, Kudoh does not teach means for providing user input to a processor configured to generate an analog signal. Accordingly, Kudoh does not anticipate claim 9 and therefore Applicants request that the Examiner withdraw the rejections of claim 9, and claims 10, 11, and 13 depending therefrom, under 35 U.S.C. §102(e).

Rejections under 35 U.S.C. §103(a)

Dependent claims 3 and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kudoh in view of Slotta. As noted above, Kudoh does not anticipate claims 1 and 9 upon which claims 3 and 12 depend, respectively. Slotta is relied upon for the teaching of a cap with a convex-shaped top, but does not teach or suggest means for providing user input to a processor, or an analog input device, for generating an analog signal. Thus, the combination of Kudoh with Slotta cannot form a prima facie case of obviousness for either independent claims 1 or 9. Thus, dependent claims 3 and 12 are also nonobvious over the combination of Kudoh with Slotta and Applicants request that the Examiner withdraw the rejections of claim 3 and 12 under 35 U.S.C. §103(a).

Dependent claims 7 and 14 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kudoh in view of Martin et al. As noted above, Kudoh does not anticipate claims 1 and 9 upon which claims 7 and 14 depend, respectively. Martin et al. is relied upon for the teaching of a trackball. However, Applicants note that Martin et al. describes an analog controller “where the input signal to the host computer varies depending on the amount the directional pad 18 [is] pressed in a particular direction” (col. 14 lines 49-52). As provided by MPEP §2143.01, “[t]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination” citing *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430, 562 (Fed. Cir. 1990).

Applicants assert, with respect to claims 1 and 9, that it would not have been obvious to one of skill in the art at the time the invention was made to substitute the directional pad 18 of Martin et al. for the stick switch 116 of Kudoh because the prior art does not suggest the desirability of the combination. In Kudoh the stick switch 116 “is available for a pointing device of a portable electronic device like a portable telephone and a PDA” (col. 1 lines 11-14) and one of the basic design limitations sought to be addressed by Kudoh is “thinness of the portable electronic device” (col. 2 line 25). However, as can be seen from the analog input embodiment shown in FIG. 5, the directional pad 18 is complex and includes multiple components, such as springs 144, in a stacked arrangement. Clearly, this directional pad 18 is not configured for thinness, and thinness is not a requirement of the game playing devices in FIGs. 1a and 1b.

Further, the stick switch 116 of Kudoh is a very simple digital device, as noted above, for a very simple application, namely, moving a cursor in orthogonal directions. While an analog signal could be used to move the cursor, introducing an analog input device into an otherwise digital device would require also adding an analog-to-digital converter (see discussion of Grome et al., below). This would use more space and increase the cost of the device. For the portable consumer electronics that Kudoh is aimed at, smaller and cheaper are highly desirable attributes.

As the prior art does not suggest the desirability of the combination, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to

substitute the directional pad 18 of Martin et al. for the stick switch 116 of Kudoh. Accordingly, claims 1 and 9 are nonobvious over the combination of Kudoh in view of Martin et al. It follows that claims 7 and 14, depending from claims 1 and 9, respectively, are also nonobvious over the combination of Kudoh and Martin et al. Therefore, Applicants request that the Examiner withdraw the rejections of claim 7 and 14 under 35 U.S.C. §103(a).

Claims 15 and 16 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Kudoh in view of Grome et al. (US 6,580,418). As noted above, Kudoh does not anticipate claim 9 upon which claims 15 and 16 depend. Grome et al. is relied upon for the teaching of at least one potentiometer and means for limiting force resulting from manipulation by the digits of the user. However, Applicants note that Grome et al. describes optical position sensors for producing analog signals that are converted to a digital format so that a processor can determine the position of a joystick control handle (col. 2 lines 16-34). Grome et al. also describes a joystick 10 including an 8-bit microcontroller 181 having an embedded multiplexed analog-to-digital (A/D) converter 182 (col. 14 lines 1-5). “A primary function of microcontroller 181 is the measurement, signal conditioning, and processing of analog voltage signals produced by X axis potentiometer 17, Y axis potentiometer 18, Z axis potentiometer 19, and throttle potentiometer 21” (col. 14 lines 8-12).

As above with respect to claim 9 in view of the combination of Kudoh and Martin et al., it also would not have been obvious to one of skill in the art at the time the invention was made to substitute the joystick 10 of Grome et al. for the stick switch 116 of Kudoh because the prior art does not suggest the desirability of the combination. More particularly, the prior art does not suggest the desirability of modifying the stick switch 116 of Kudoh to include the optical position sensors or potentiometers 18, 19, and 21 and associated microcontroller 181 and A/D converter 182 of Grome et al. As above, such a modification would add unnecessary additional components and complexity at the expense thinness and cost just to position a cursor to select “functions from a function menu” (Kudoh col. 1 lines 19-20).

As the prior art does not suggest the desirability of the combination, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to substitute the joystick 10 of Grome et al. for the stick switch 116 of Kudoh, nor modify the stick switch 116 of Kudoh to include the optical position sensors or potentiometers 18, 19, and 21 and associated microcontroller 181 and A/D converter 182 of Grome et al. Accordingly, claim 9 is nonobvious over the combination of Kudoh in view of Grome et al. It follows that claims 15 and 16, depending from claim 9, are also nonobvious over the combination of Kudoh and Grome et al. Therefore, Applicants request that the Examiner withdraw the rejections of claim 15 and 16 under 35 U.S.C. §103(a).

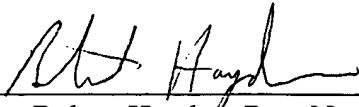
Claims 17-24 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Grome et al. in view of Redlich. The rejections are moot in view of the cancellation of these claims.

All pending claims are allowable and Applicants therefore respectfully request a Notice of Allowance from the Examiner. Should the Examiner have questions, the Applicants' undersigned agent may be reached at the number provided.

Respectfully submitted,
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